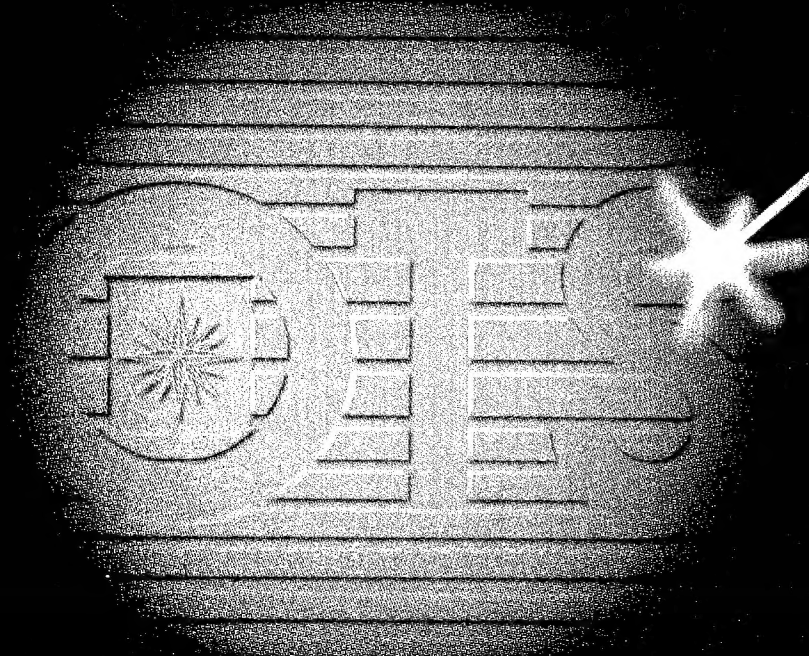


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RELEASE  
DATE: MAR 2007

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(b) (1)  
(b) (3)

# ***Fifty Years*** ***of Supporting Operations***



*A History of CIA's Office of Technical Service*

# ***1951 – 2001***

*Benjamin B. Fischer, CIA History Staff*

*Foreword by Robert W. Wallace, former Director of Technical Service*

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## CHAPTER 1

### Dirty Tricks and Deadly Devices (U)

The Office of Technical Service (OTS) marks 7 September 1951 as its founding date. On that day, its predecessor organization, the Technical Services Staff (TSS), was created. But the full heritage of OTS predates the Central Intelligence Agency and can be traced to the Office of Strategic Services (OSS), America's first intelligence agency.<sup>1</sup> OTS is the lineal descendant of the OSS Research and Development Branch (OSS/R&D), which Colonel (later Major General) William J. ("Wild Bill") Donovan (1883-1959) created in October 1942 to devise dirty tricks and deadly weapons in subversive wars against Germany's Adolf Hitler and Japan's Emperor Hirohito. (U)

Donovan appointed Stanley Platt Lovell (1890-1976), a self-described "saucepan" chemist and successful New England entrepreneur, as chief of the Branch. Lovell was an orphan, who had put himself through Cornell University, where he earned a degree in chemistry. He served in research and management positions in private industry and was president of one chemical company and vice president of another in the Boston area when World War II broke out. His accomplishments included application of organic chemistry to shoemaking, clothing manufacturing, and orthopedic surgery. He held more than 70 US and foreign patents. (U)



Stanley Platt Lovell (U)

If Donovan was the forefather of CIA, Lovell was the founding father of OTS. Lovell was typical of the executives,

<sup>1</sup> For a compact history of OSS, see Michael Warner, *The Office of Strategic Services: America's First Intelligence Agency* (Washington, D.C.: Central Intelligence Agency, 2000). (U)

goat dung. This biological warfare project was canceled at the last minute, when German forces left Morocco for Stalingrad.<sup>40</sup> (U)

**OSS and SOE Weapons and Devices (U)**

Abalone	Method for attaching Limpets and explosive devices
Anerometer	Barometric fuse triggered by altitude changes
Aqua Vita	Method for sterilizing contaminated drinking water
Balsam	Chewable paper, resistant to humidity
Beano	Baseball-shaped grenade
Caccolube	Chemical used to sabotage automotive engines
Firefly	Delayed-action hand grenade used against fuel tanks
Fountain	Explosive used to sabotage train engines
IFT	Electro-magnetic transmitter homing device
Limpetry	Method for attaching mines to steel or wooden ships
The Mole	Photo-sensitive electronic switch for train sabotage
MWT	Microwave transmitter for agent communications
Odometer	Switch used to trigger explosives on railroad tracks
Paul Revere	Incendiary used on land and water to ignite crude oil
Pencil	Chemical time delay
Incendiaries	Pocket-sized, celluloid case filled with gelled solvent
Rocket	Spin-stabilized rocket for use with rocket launcher
Silencer	Muzzle noise suppressor for light weapons
Spigot Mortar	British silent and flashless weapon
Teak	Method for attacking wooden ships and bridges
Zephyr	Method for silencing outboard motors

*This table is Unclassified.*

In 1944, Lovell approved an operation to use nerve gas in the assault on Iwo Jima. The invasion planners estimated that US Marines would suffer 23,000 casualties, and the JCS wanted to reduce that number if possible. President Roosevelt vetoed the proposal, even though neither the United States nor Japan had signed the Geneva Convention prohibiting the use of nerve gas. (U)

Lovell developed several plans for incapacitating or even killing Adolf Hitler. One scenario involved a capsule of liquid nitrogen-mustard gas, which is colorless, odorless, and floats on water. OSS recruited an agent scheduled to attend a war conference attended by Hitler and Italian dictator Benito Mussolini. The agent was to crush the capsule in a flower vase, whereupon the gas

<sup>40</sup> Lovell, *Of Spies & Stratagems*, pp. 136-137. (U)



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Chapter 2

the time noted, the latter was "self-revealing," i.e., it involved actions that could not be concealed. The concept of "plausible deniability" was not yet in vogue. (U)

US Clandestine Services and Technical Support (U)		
Office	Created	Abolished
Office of Strategic Services	June 1942	October 1945
Strategic Services Unit	October 1945	October 1946
Central Intelligence Group	January 1946	September 1947
Office of Special Operations	July 1946	September 1952
Office of Policy Coordination	September 1948	September 1952
Central Intelligence Agency	September 1947	
Directorate for Plans	September 1952	March 1973
Directorate of Operations	March 1973	
Technical Services Staff	September 1951	May 1959
Technical Services Division	May 1959	May 1973
Directorate of Science & Technology	August 1963	
Office of Technical Service	May 1973	
This table is Unclassified.		

OPC was dependent on CIA for rations and quarters, but it took direction from the State and the War (and later, Defense) Departments.<sup>13</sup> Its chief, Frank Wisner, was an OSS veteran with an office at State. Mainly because of a war scare in 1948 and the Korean War two years later, OPC grew rapidly. In 1949, Wisner had a staff of 302, a budget of \$4.7 million, and no overseas stations. By 1952 he was overseeing a staff of 2,812, a budget of \$82 million, and 47 stations.<sup>14</sup> OSO and OPC maintained separate stations and lines of command. (U)

The formation of OPC was unprecedented, since it was the first civilian peacetime special operations capability in American history. Its formation also

<sup>12</sup> The first major policy decision on covert action ("psychological warfare") aimed at encouraging armed resistance against Soviet domination in Eastern Europe was National Security Council (NSC) 4-A. It was adopted just before Christmas 1947 and was so sensitive that only three copies were made. The follow-on decision, NSC 10/2, created OPC and made across-the-board political, economic, paramilitary, and propaganda subversion against the USSR and its allies official US policy. See Grose, *Operation Rollback*, pp. 96-96, 104. (U)

<sup>13</sup> The War Department was renamed Department of Defense in February 1949. (U)

<sup>14</sup> William M. Leary, ed., *The Central Intelligence Agency: History and Documents* (Tuscaloosa and London: The University of Alabama Press, 1983), pp. 43-44. (U)

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Postwar Bureaucratic Battles—OSS in Transition to CIA (U)

OTS Birth Certificate (U)

HR-2-3004

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40 37 69  
37 69  
37 69

7 September 1951

TO: SAC, Port: Acting Chief, Operational Aids Division

FROM : Deputy Director (Plans)

SUBJECT : Organization

1. Effective immediately the Operational Aids Division is redesignated the Technical Services Staff.
2. The Chief, Technical Services Staff will report to the Deputy Director (Plans).
3. The Colonel TSS/DO/r is assigned to the Technical Services Staff.

*Frank G. Merriam*  
FRANK G. MERRIAM

cc: Deputy Director (Admin) (5)  
AD/GO  
AD/IC  
AD/CO  
SA/DNI  
Director of Communications

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Chapter 2

First TSS Organization (U)

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24 September 1951

MEMORANDUM FOR : Executive Officer, Deputy Director (Plans)

FROM : Acting Chief, TSS/DD/P

SUBJECT : Organization

DOC 36	REV DATE 21/5/10	BY 37709
ORIG CLASS 56	ORIG DPT 56	TYPE 02
ORIG CLASS 56	ORIG DPT 56	REV CL 05
JUST 22	NEXT REV 2010	AUTH: HK 107

1. In compliance with your memorandum (SR-2-1027) requesting organizational breakdown of offices, be advised that effective 7 September 1951 the Operational Aids Division (OAD/DD/P) has been redesignated the Technical Services Staff (TSS/DD/P) headed by Col. James H. Drum, Acting Chief, TSS/DD/P, Room 1513 "L" Building, Extension 512.

2. The following listings of Divisions, and names and titles of personnel are presented:

AD  
JAMES H. DRUM  
Acting Chief, TSS/DD/P

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and personal effects, concealment devices, disguise, and escape and evasion aids). Two of the divisions were located in Central Building at the E Street complex, and the others were housed in temporary quarters, L Building and Quarters I on the Mall, just off Ohio Drive.<sup>34</sup> (S)

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### Spinoffs to US Air Force Applications (U)

TSS made major contributions to CIA aerial reconnaissance, but it remained on the sidelines as the Agency moved into the era of earth-orbiting satellites. Even though Dr. Gibbons attended the first major discussion of the use of satellites as intelligence-collection platforms—a discussion that eventually led to CIA's CORONA program—TSS's most important contribution to CORONA would be the unexpected use of SKYHOOK.<sup>29</sup> The SKYHOOK project had not panned out as originally intended, but the Navy adapted the technology and used it to grab film canisters ("buckets") released by CORONA satellites as they parachuted to earth. (U)

### TSS Innovations in Aerial Reconnaissance (U)

<sup>28</sup> Ibid., p. 115. (U)

<sup>29</sup> Joseph A. Frank, OPC/SAR [Office of Policy Coordination/Special Assistant for Research], "Discussion of the Feasibility and Utility of a Satellite Vehicle for Reconnaissance Purposes," 25 July 1952. Cited in Miller, *Office of Policy Coordination 1948-1952*, Volume II, p. 370 n 222. The conference was held at the California Institute of Technology at CIA request. For a history of the CORONA project see Kevin C. Ruffner, ed., *CORONA: America's First Satellite Program* (Washington, D.C.: Central Intelligence Agency, 1995). (S)



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Illustrations

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24 April 1951

MEMORANDUM TO: AD50

SUBJECT : Transmittal of Staff Study of Problems of QAD

1. Transmitted herewith is a staff study on the above subject prepared at the request of Mr. Richard Helms, APO.
2. A sincere effort has been made to present the QAD problem in terms of magnitude, responsibility, position with respect to OSO, OFC, and CIA, organization, personnel, procurement, and space.
3. Recommendations have been presented for the solution of the immediate problems. However, the basic problem of the relationship of QAD to a similar unit within OFC remains to be resolved. On the resolution of this problem, many of the over-all far-reaching problems will depend. It is felt that this is beyond the scope of QAD's responsibility in such matters and will of necessity have to be solved at a higher level. These problems, however, have been pointed out in the study presented.
4. It should be noted that since the initiation of this study the Table of Organization presented in Tab E has been approved. For the purpose of fulfilling the mission and responsibility as outlined in this study, this T/O is inadequate.

JAMES H. DRUM  
Chief, QAD

Attachment

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1420/10-1  
1420/10-1

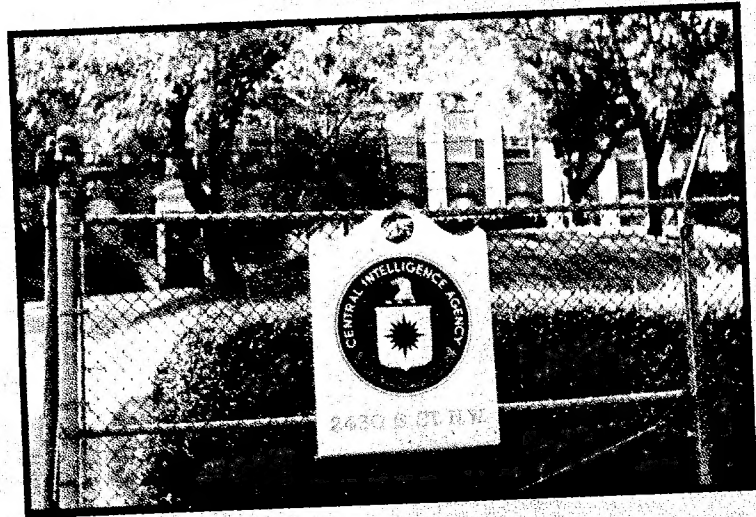
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Cover memo for the "Bible," James Drum's Study of Problems in Technical Support (U)

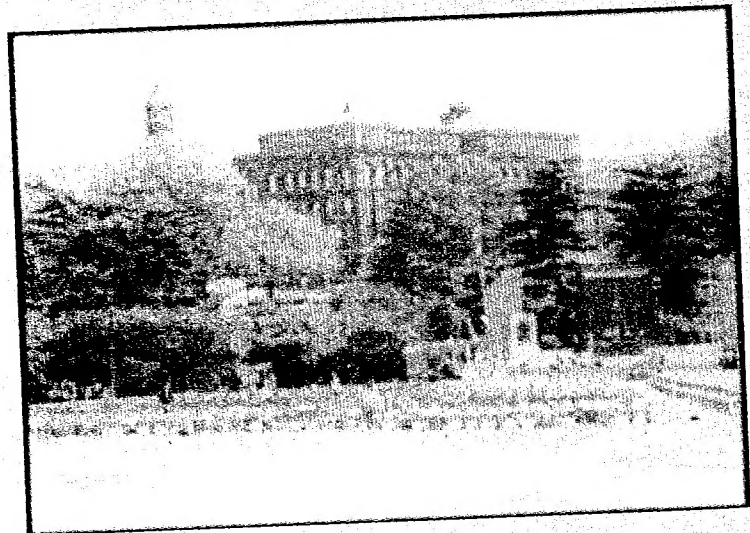
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# Illustrations



2430 E Street housed the CIA Headquarters until it moved to Langley, Virginia. Technical services remained behind. (U)

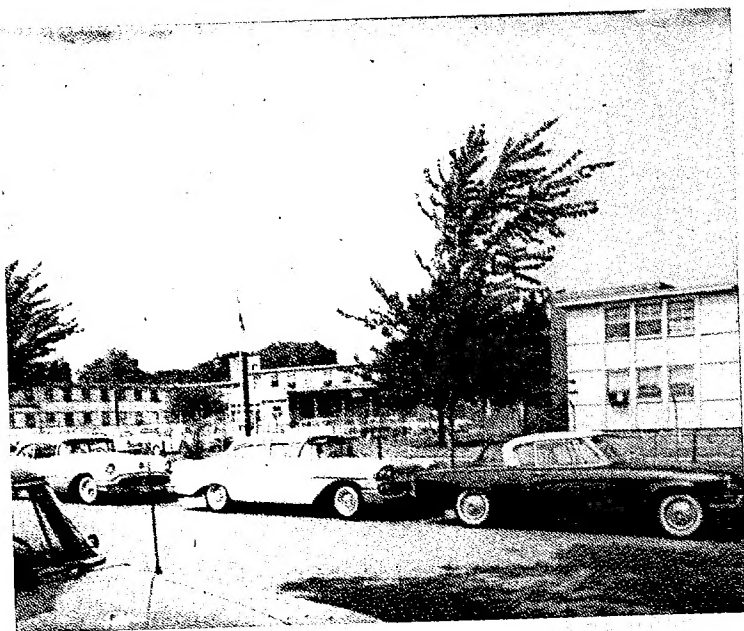


The Westout Building was among several TSS and TSD occupied in the nation's capital. (U)

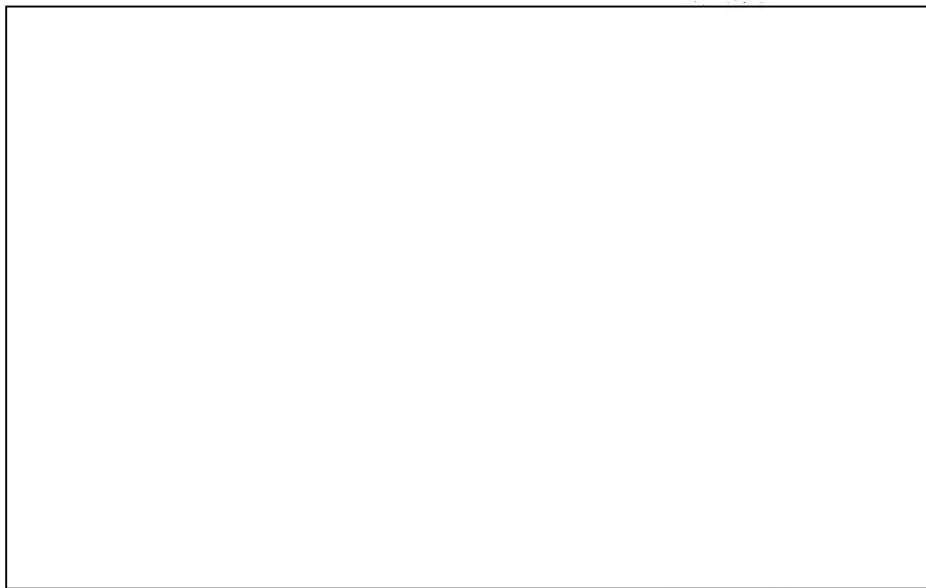
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Illustrations



"Temporary" Quarters I, near West Potomac Park was used by the OSS, before TSS and TSD used it during the 1950s. (U)

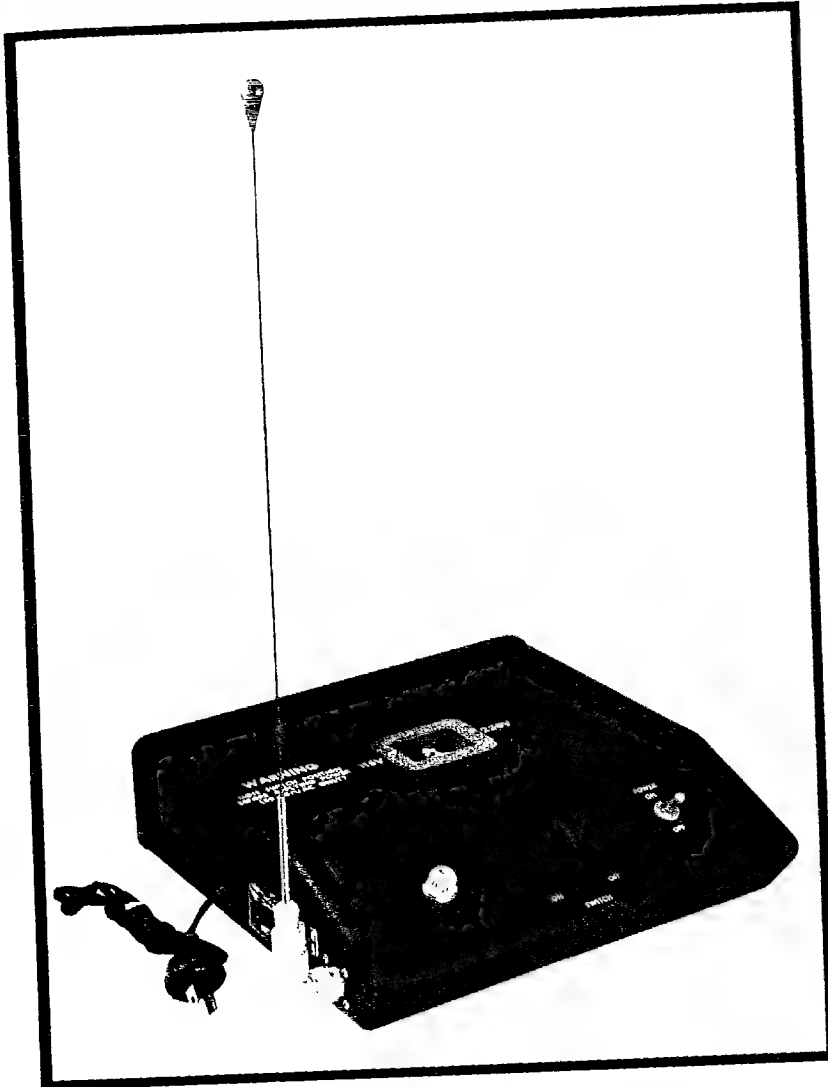


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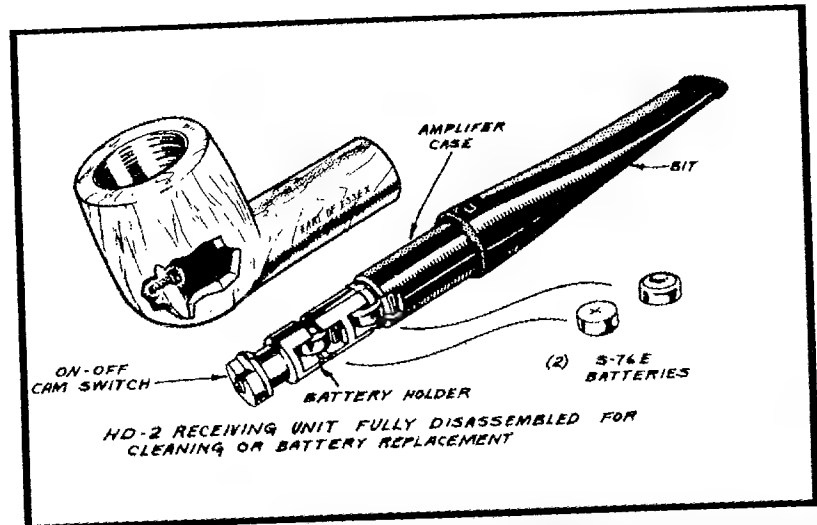


The RT-1 (Radio transmitter #1) was the first CIA audio transmitter. Large and in need of a regular electric power source, the RT-1 was difficult to conceal. (U)

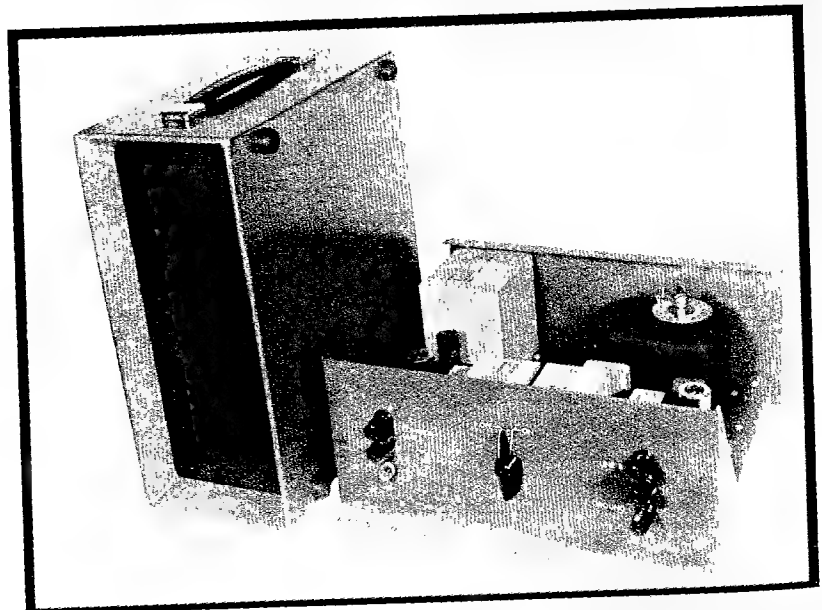
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# Illustrations



The HD-2 (Hearing Device-2) was an early countersurveillance device. With a neck loop antenna and bodyworn receiver, the pipe would allow an officer to hear nearby hostile radio communications by biting down on the pipe stem. (U)

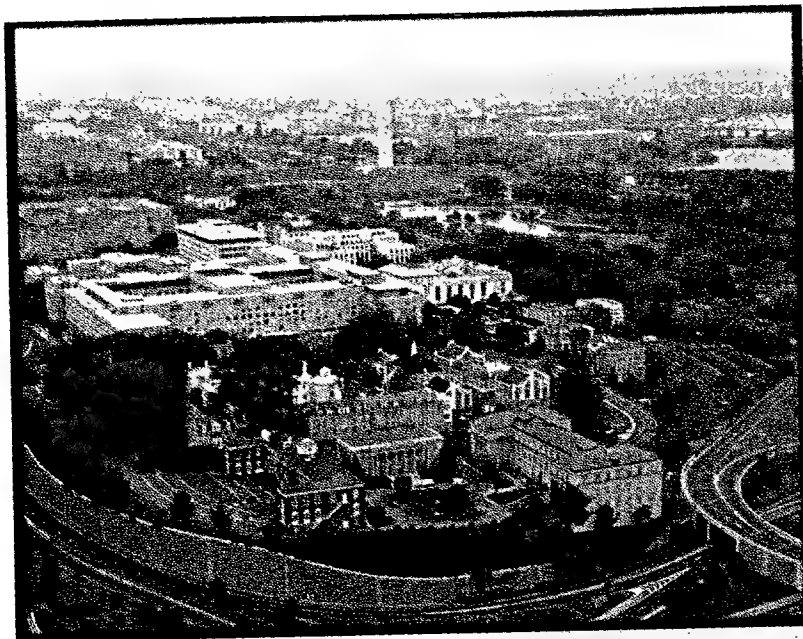


The BOOKIE phone covert communication device (1958) was used to communicate safely with unvetted assets in areas, such as Germany and Austria, occupied by hostile services. (U)

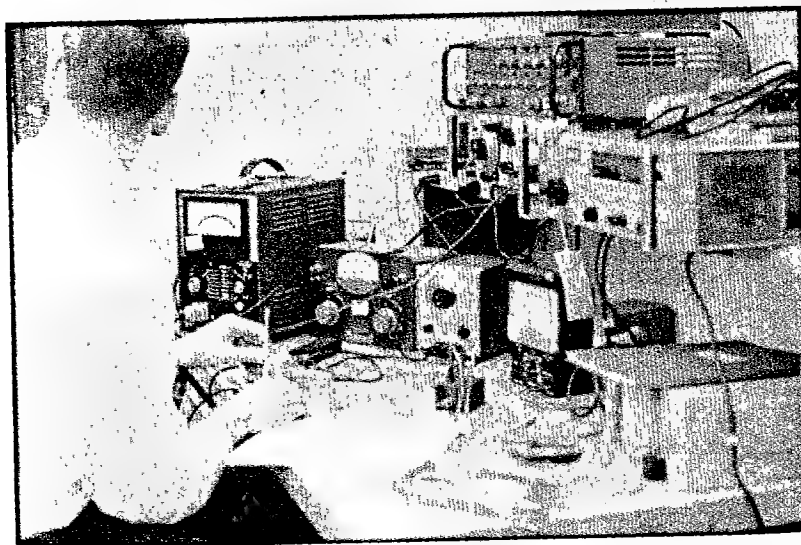
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Illustrations



The E Street Complex, which TSD and OTS occupied into the 1980s. (U)



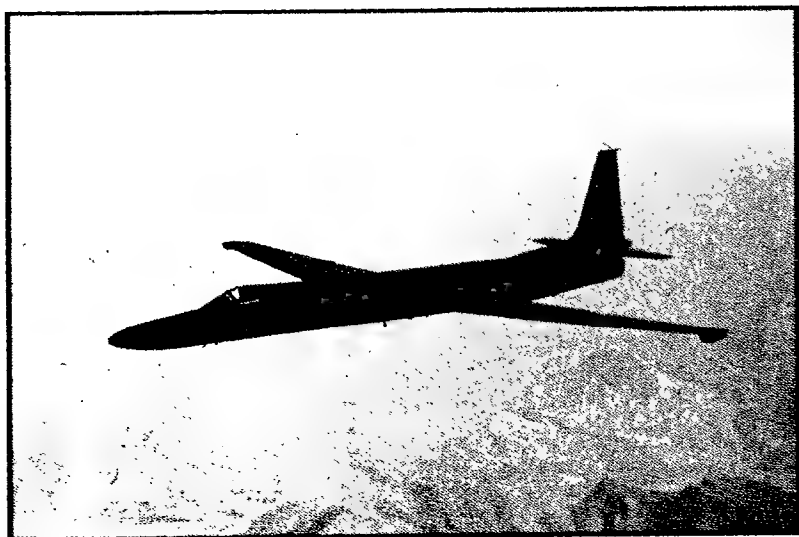
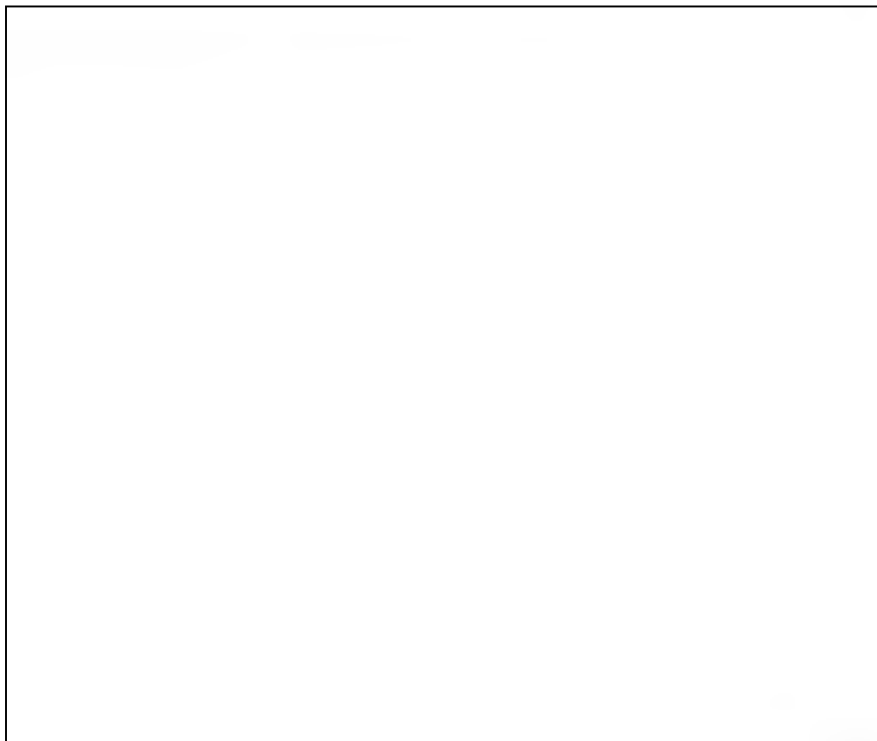
Following a costly operational failure in the 1960s of audio equipment installed in an Asian site, TSD created an equipment testing group, located at [redacted]

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# Illustrations

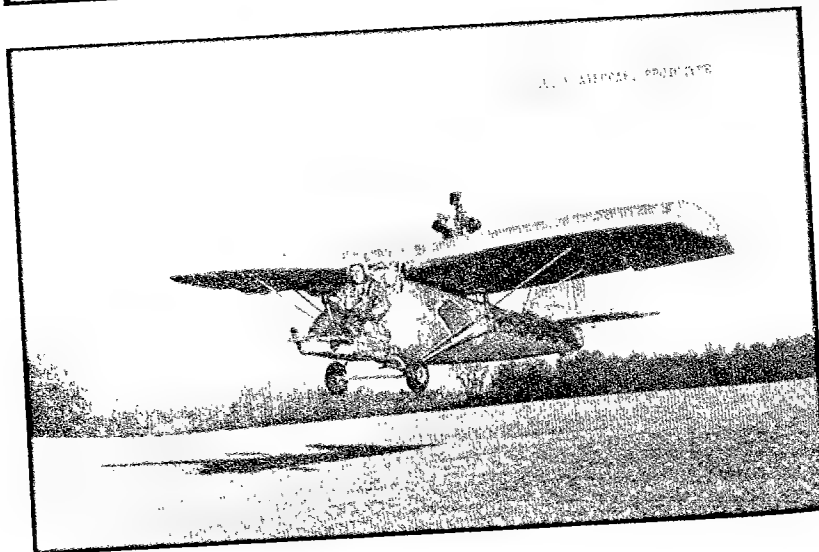
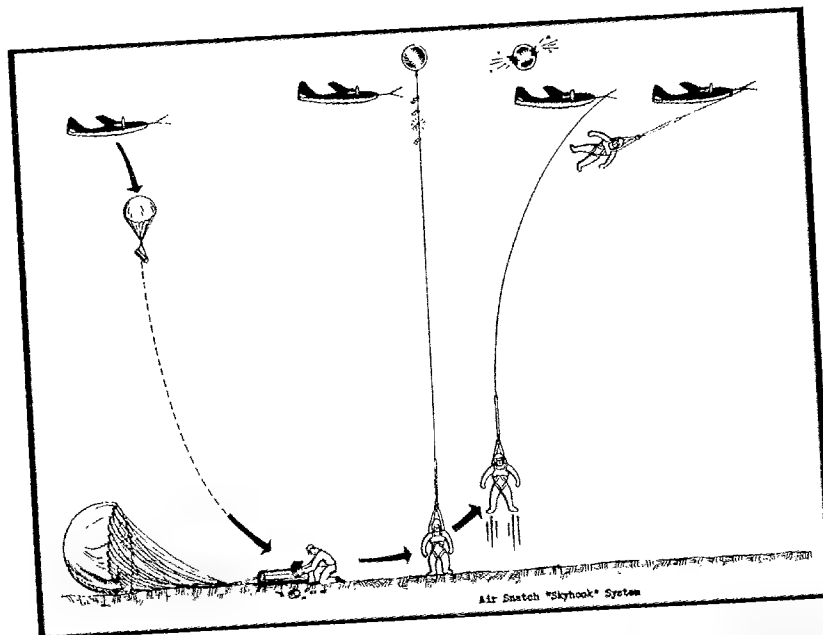


TSD was a key player in the U-2's development. The office also helped develop psychological screening for prospective pilots and supplied a concealed poison pin for pilots' use. (X)

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Illustrations

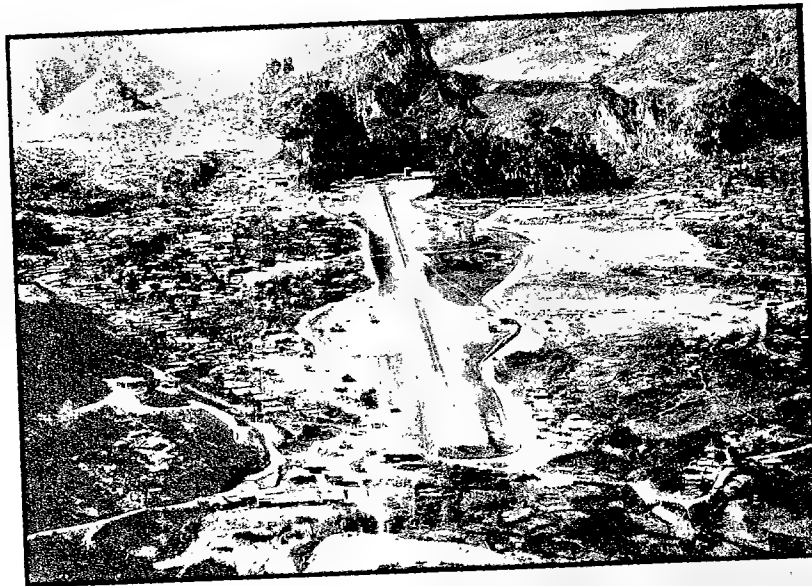
During a covert action in Indonesia (1958-59), a Civil Air Transport pilot named Allen Pope was shot down delivering supplies to the insurgents. TSS's Water-Air Division worked on two plans to rescue Pope from a low-security jungle jail. One plan involved using the SKY-HOOK device and the other a collapsible rubber aircraft (both pictured below). Neither plan proved practical, and eventually Pope was released. (S)



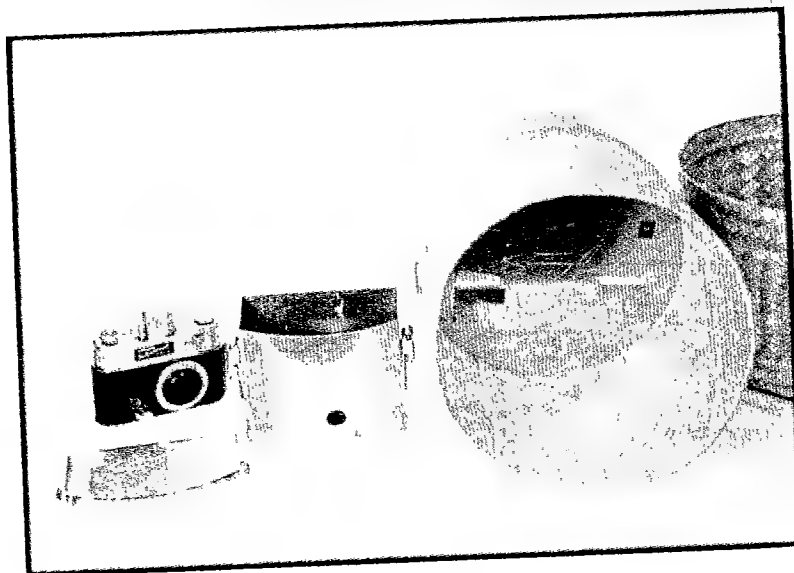
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Illustrations

Between 1953 and 1970, CIA managed a secret war in Laos against local and North Vietnamese communist forces. (U)



Among many other things, work in Laos involved trips to locations like the one above or preparation of concealments, such as the wicker basket below, to transport spy gear. (U)



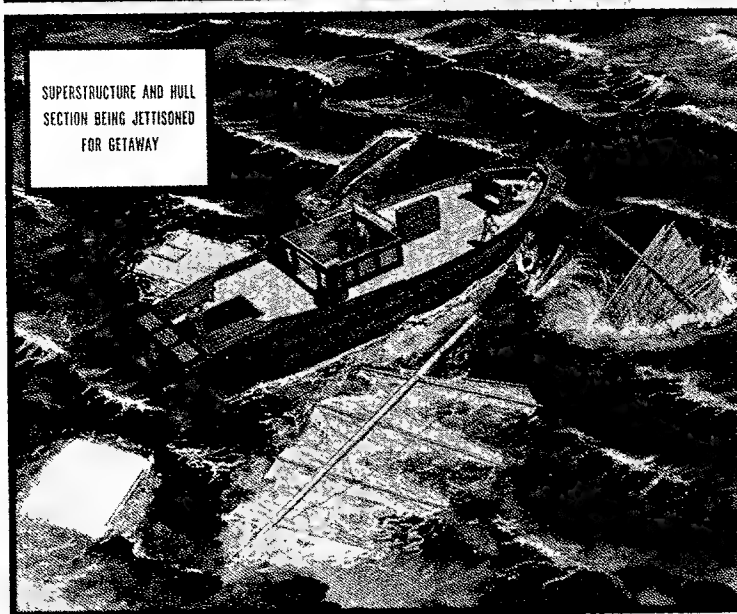
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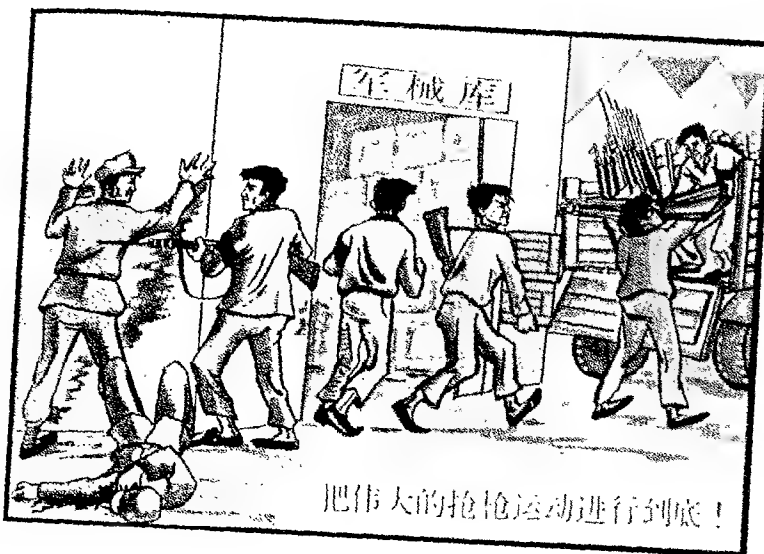
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# Illustrations

TSD played a key role in maritime sabotage operations. A Navy SEAL team near Da Nang used Chinese junks extensively modified by TSD's Engineering Branch. The junks had concealed diesel engines that were used only when in hot pursuit of a target or for fast escapes. (sketches of one such design below). (U)



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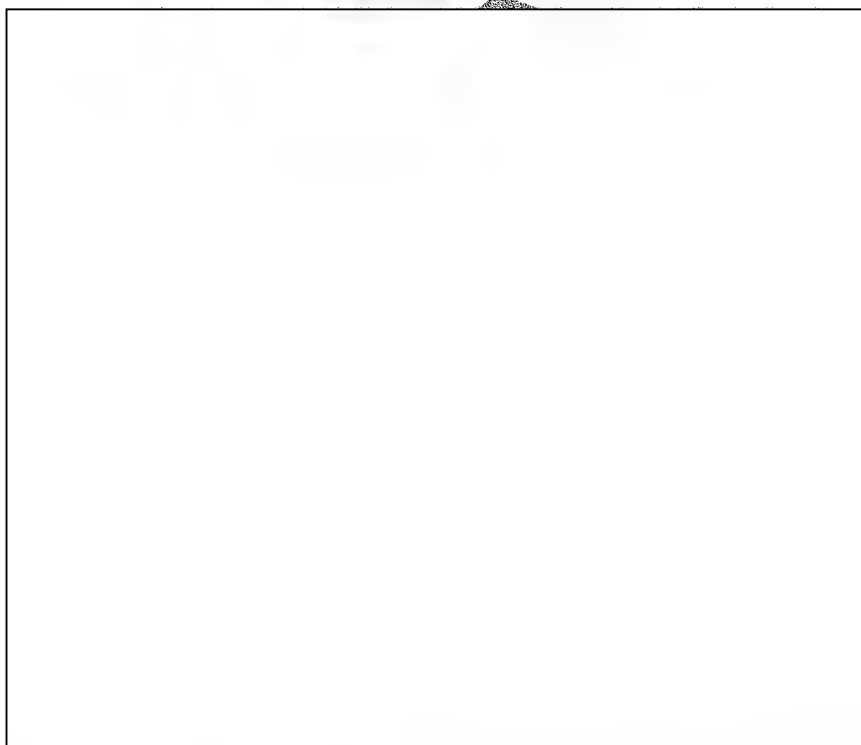


TSD contributed to propaganda efforts aimed at the communist Chinese. Leaflets, like those shown, were dropped from balloons onto mainland China. With Chinese text on the flip side of the cartoons, the leaflets aimed to exploit the political turmoil Mao Zedong had sown in the mid-1960s. Such projects involved many skills: graphic arts, linguistics, engineering, physics, and meteorology. (C)

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Illustrations



Spies, like the famous GRU Colonel Oleg Penkovsky—shown on trial (left)—depended on commercial miniaturized photographic equipment to copy documents. In the 1960s TSD developed increasingly sophisticated, miniature devices for photocopying.



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a press tour of its classified spy museum, appropriately located in the Hall of Chekisti in Lubyanka, the KGB Headquarters building.<sup>17</sup> The guide singled out a collection of items reportedly obtained from CIA and other western spy services. It included pocket computers, tiny satellite communications devices, a pen-photo camera, ampoules with poison, a light torch [flashlight] with a built-in gun, cryptographic equipment and other spy paraphernalia confiscated from foreign agents. (U)

Five years later the KGB successor organization, the Federal Security Service (FSB), revealed another artifact, which it shared with the *National Geographic*. It was a microscopic text message that had been etched into the black border of a 1983 issue of the esteemed publication—a new twist on an old spy craft, microdots, invented by the Germans before World War II. (U)

**From the KGB Museum to *National Geographic* (U)**

"Here is a unique copy of the February 1983 *National Geographic*.

"Unbeknown to the [National Geographic] Society, someone etched a micro-message into the black borders around several ads and features. Under high-power magnification, the message specifies where and how to leave a package and to make contact. 'Wait ten minutes only,' it reads. 'Our representative will say...'" (U)

"According to a museum curator, the doctored magazine was given to a Soviet intelligence officer, Col. Vladimir Mikhailovich Vasilyev, by two US agents who recruited him in Budapest. Vasilyev delivered reports on weapons and military plans from 1983 until he was arrested by the KGB and executed in 1986. Experts say he may have been fingered by CIA defector Edward Lee Howard or mole Aldrich Ames, arrested last year. (U)

"The KGB concluded that the micro-message was etched by a computer-guided laser beam in a secret lab. Asked to comment, a CIA spokesman said only: "It is not surprising that the technology exists." (U)

—Excerpt from *National Geographic*

<sup>17</sup> The first Soviet internal security and intelligence organization was known as the Cheka and its officers were called Chekisti (Cheka men). (U)



#### Soviet Version of the CIA Cable Tap Operation (U)

[REDACTED]

"The Mole was developed by intelligence services for monitoring underground wire communications lines. This device, removed from a cable running to a military unit, used the principle of electromagnetic induction. It was installed on the cable line in a camouflaged depression. Information transmitted over the cable was recorded on the tape of a wideband recorder using a special sensor . . . surrounding the cable. The cassette would be replaced as it was filled. The Mole is supplied with a signaling radio to ensure the unit's security and for cassette removal. An agent riding or passing by near where the device is set up queries it by a coded signal whether "everything is normal." If the sensor has not been touched, the agent receives an affirmative signal. In this case, with conditions being favorable, the cassette is replaced in the tape recorder and recording continues. The apparatus can store information from 60 telephone channels. Recording time on the tape recorder is approximately 115 hours."<sup>1</sup> (U)

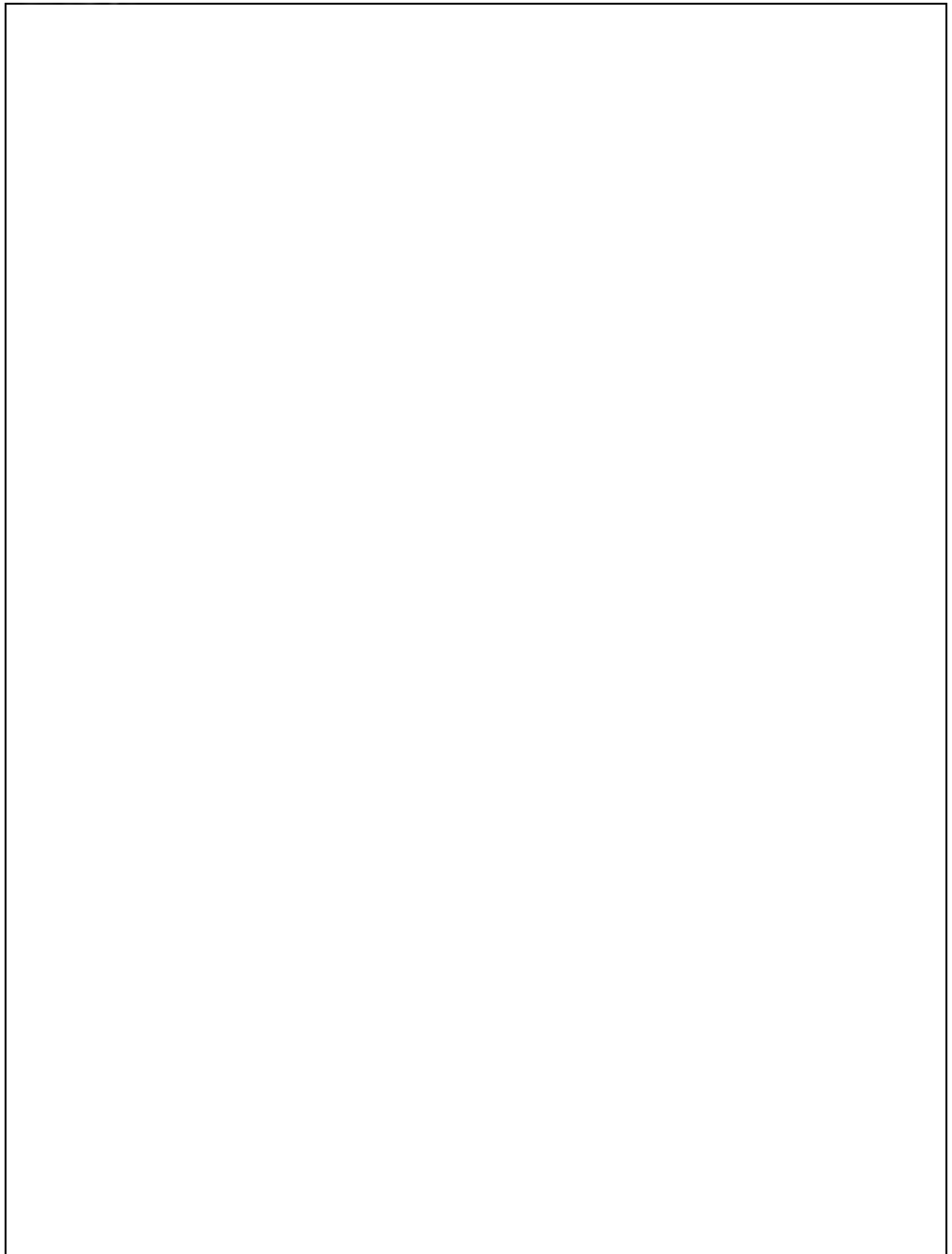
<sup>1</sup> Brusnitsyn, "U.S. Global Intelligence Collection," pp. 33-38. (U)

#### Winds of Change (U)

The winds of social and attitudinal change began sweeping through OTS even before the Cold War had ended. A 1989 Inspector General's report found significant problems with sexual and racial harassment, as well as a general lack of sensitivity to changes in the workplace and in American society as a whole. Frank Anderson, the director at the time, was offered—and seized—an opportunity to put his house in order without outside interference.<sup>21</sup> Anderson relied on jawboning the troops and training to solve the problem. Meanwhile, African-American officers in the [REDACTED] formed a support group, the Black Officer Support System, and the women and Minority Advisory Panel followed. OTS established the Open Door Award, presented to officers who made notable contributions to advancing women and minorities. Next came the Multicultural Management Staff, a peer panel promotion system, and cultural diversity training for OTS staff. (S)

<sup>21</sup> Anderson interview. (S)

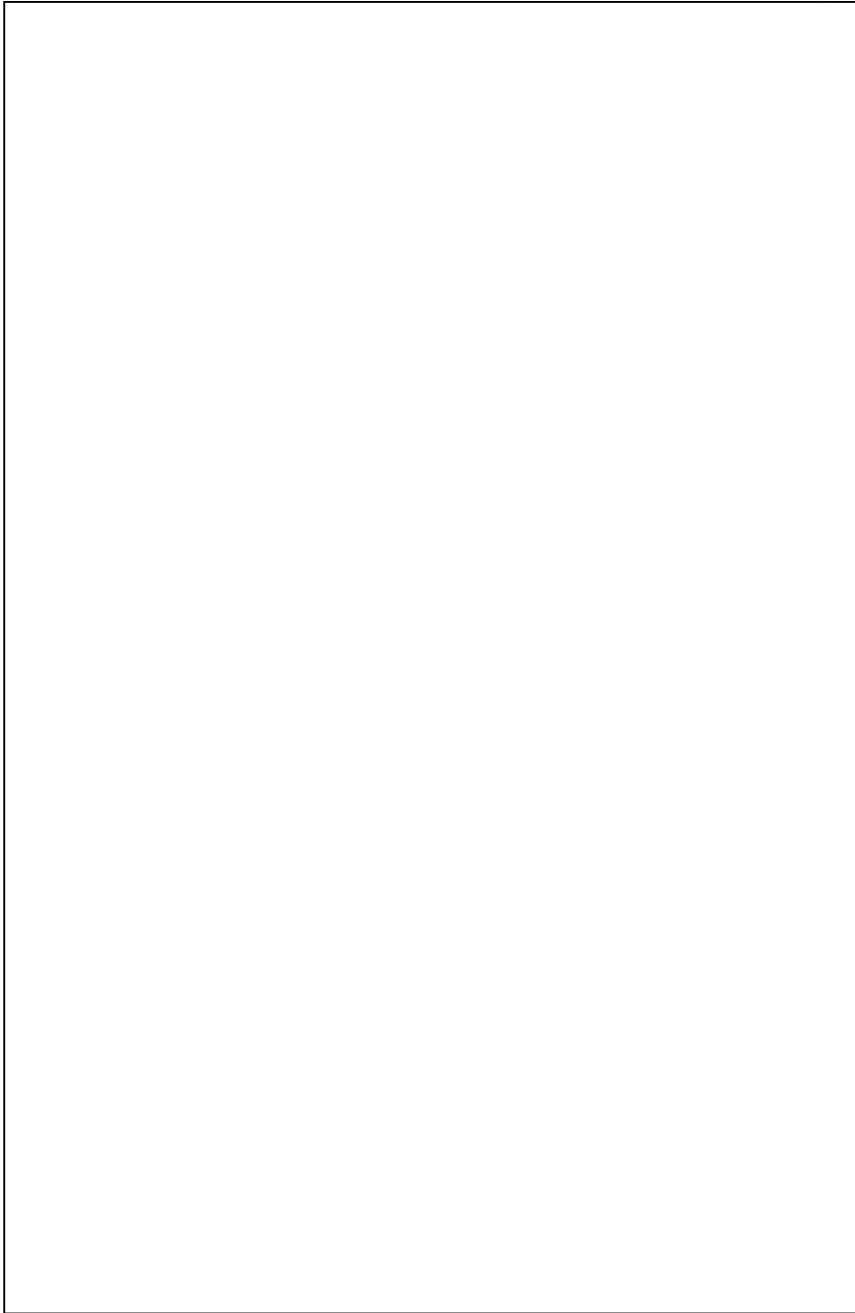
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Illustrations



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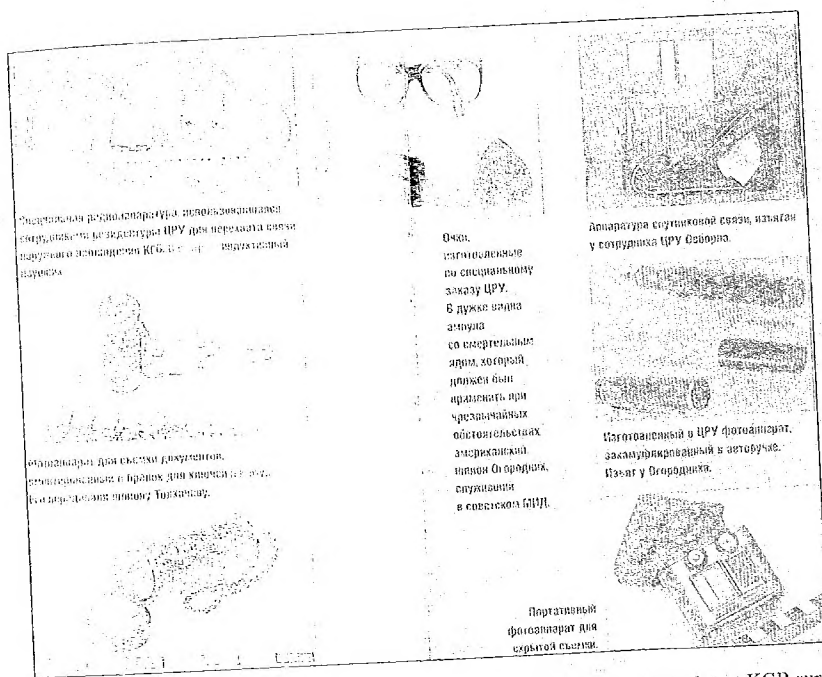
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Illustrations



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In 1999, the Soviets revealed a variety of CIA-produced spy gear taken during this period from CIA agents or officers, the collection pictured in a Russian book below can be seen in a museum in Moscow. (U)



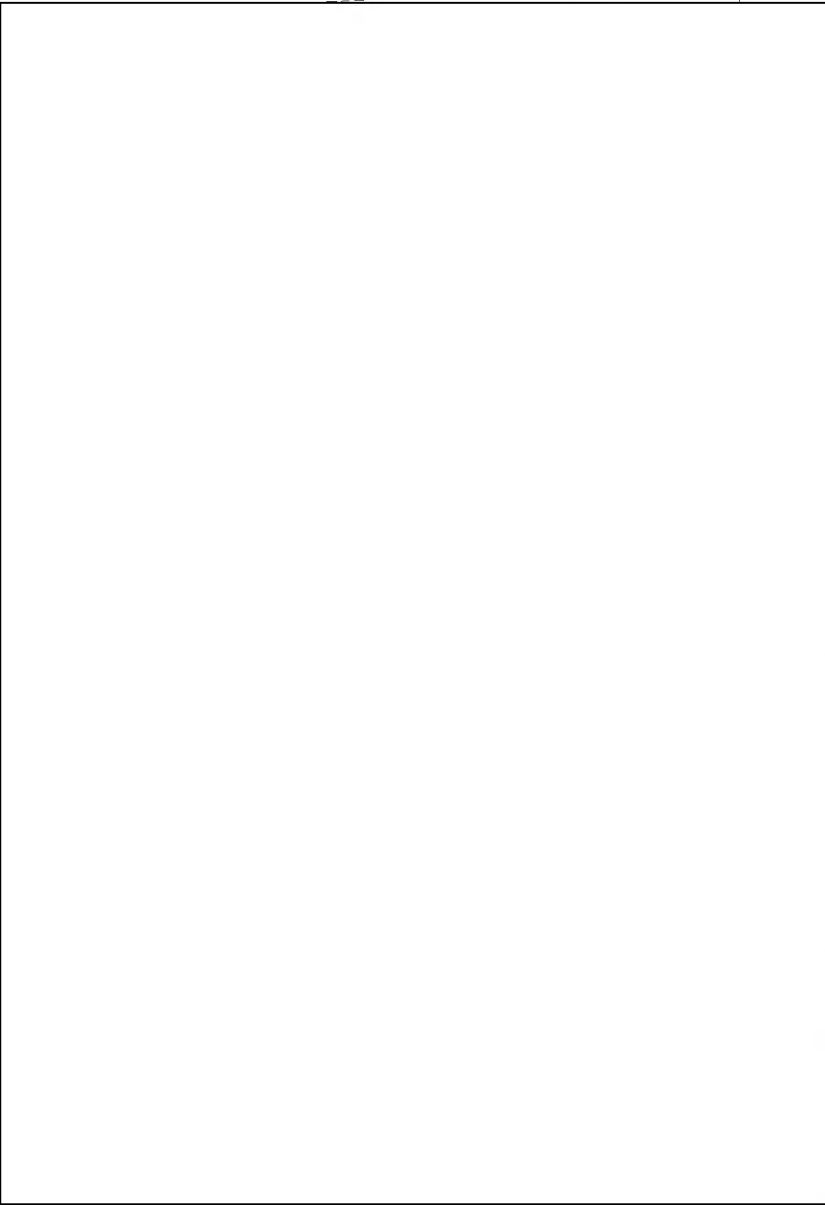
Clockwise from the upper left are: a body-worn receiver and antenna used to detect KGB surveillance; eye glasses with poison concealed in one of the earpieces; satellite-based communication device taken from a CIA officer; camera concealed in a ball-point pen; Tessina camera, of the type given E. Howard Hunt of the White House "plumbers"; camera concealed in a key fob. (U)



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Illustrations

Digging tunnels to gain access to telecommunications cables dates back to the famous Berlin Tunnel of the mid-1950s.



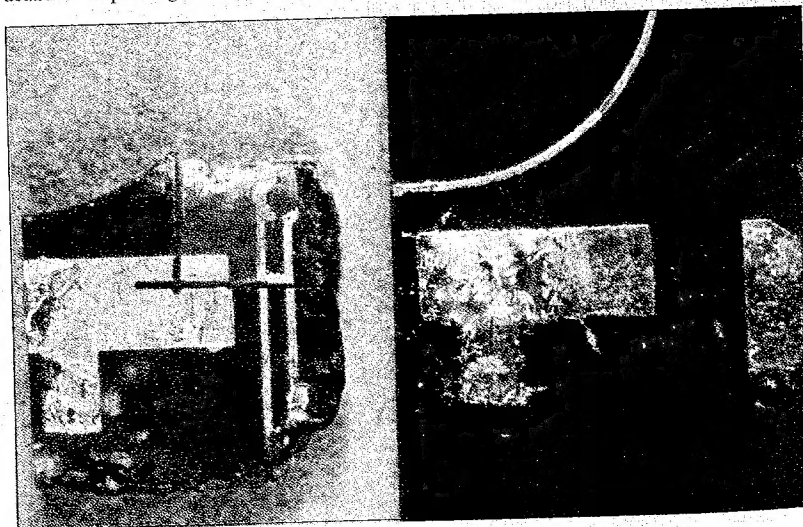
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# Illustrations

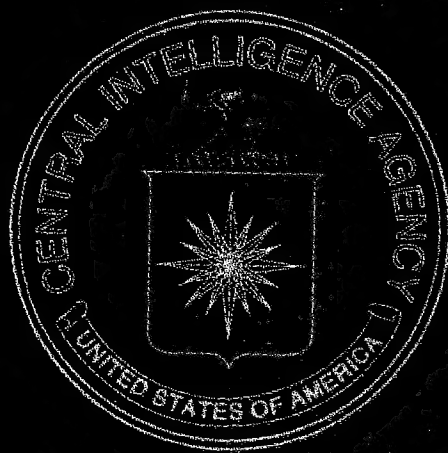


The OTS [redacted] examines and documents foreign spy gear and weapons of terror. A staff expert recognized a fragment of a circuit board (below left) found at the crash site of PanAm 103 near Lockerbie, Scotland, as identical to a part of a Libyan owned timing device the staff had examined some time before (below right). His testimony and that of one other OTS officer helped convict a Libyan operative in the destruction of PanAm 103 and the deaths of its passengers and crew. (U)



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*Center for the Study of Intelligence*

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